PENANG SANGAM HIGH SCHOOL

P.O.BOX 44, RAKIRAKI

LESSON NOTES – WEEK 15
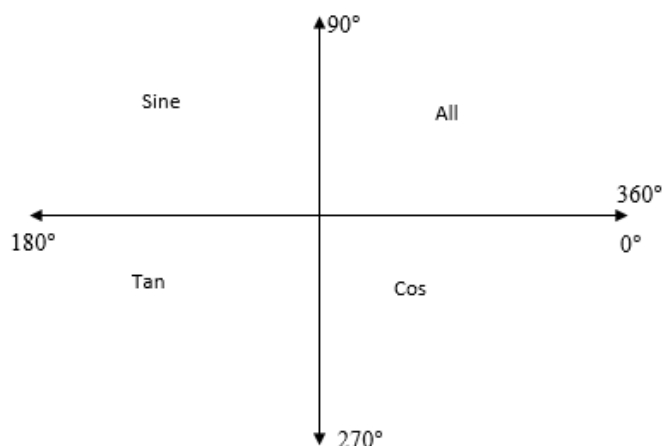
School: Penang Sangam High School   **Year/Level:** 13   **Subject:** Mathematics

Strand	4 **TRIGONOMETRY**
Sub Strand	4.1 Trigonometric Identities and Exact Values
Content Learning Outcome	Students should be able to; - find exact values using quadrant

Trigonometric Ratio's and Quantities.

Example 1:   If find $\sec\theta,$ **if** θ **is in quadrant III.**

Using Pythagoras theorem

$c^2 = a^2 + b^2$

$3 = x^2 + 1$

$2 = x^2$

$\sec\theta = -\dfrac{1}{\cos\theta}$

Cosine is negative in Q3

$\sec\theta = -\dfrac{1}{\cos\theta}$

If and θ is in the second quadrant, find the exact value of

a) $\cos 2\theta$
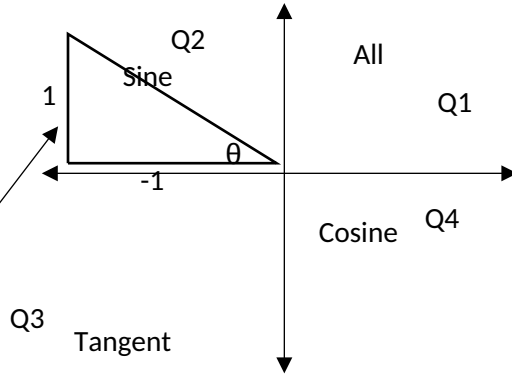
Using Pythagoras theorem

$c^2 = a^2 + b^2$

$2 = x^2 + 1$

$1 = x^2$

$x = 1$

Q2
Sine

1

-1

θ

Q3
Tangent

All

Q1

Cosine   Q4

sine is positive.

$\cos 2\theta = 1 - 2\sin^2\theta$

$= 1 - 2(\frac{1}{2})$

$= 1 - 1$

$= 0$

b) $\sec \theta$

$\sec \theta = -\dfrac{1}{\cos \theta}$

Exercise:

1. If and θ is in the second quadrant, find the exact value of $\sin 2\theta$.

2. If θ is an angle in the fourth quadrant and $\cos \theta = \dfrac{20}{29}$. Find the exact value of $\sin 2\theta$ and $\cos 2\theta$.